MAGSENSE® INSTRUCTION SHEET

MODEL 70 METER MONITOR

NONLATCHING
Part Numbers
100 μa 4-15144-10
1 ma 4-15144-20
10 ma 4-15144-30
100 ma 4-15144-40

CONTROL DATA CORPORATION

CONTROL SYSTEMS DIVISION

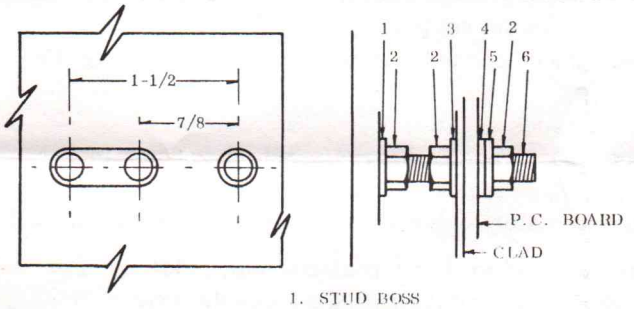
4455 MIRAMAR ROAD, LA JOLLA, CALIFORNIA

METER MONITOR INSTALLATION

CHASSIS MOUNTING. Use insulated, tapped spacers between printed circuit board and chassis. Board mounting holes will accomodate insulated spacer mounting screws within dimensions indicated on the drawing below.

QUICK DISCONNECT MOUNTING. The Meter Monitor can be edge mounted in printed circuit board connectors such as Elco 6007-18, Cinch Jones 250-18, and Precision Connector 60-062-18. The clad runout to the edge of the circuit board from the terminal posts extends the circuitry to the connector.

MOUNT CIRCUIT BOARD ON METER



1. STUD BOSS
2. NUT (NF)
3. EXTERNAL TOOTH LOCK WASHER
4. FLAT WASHER
5. SPRING LOCK WASHER
6. METER STUD 1/4 28 MAX. (NE)

Correct polarity must be observed. Items marked NF (not furnished) are standard items furnished with the meter and used in the installation as shown.

NOTE

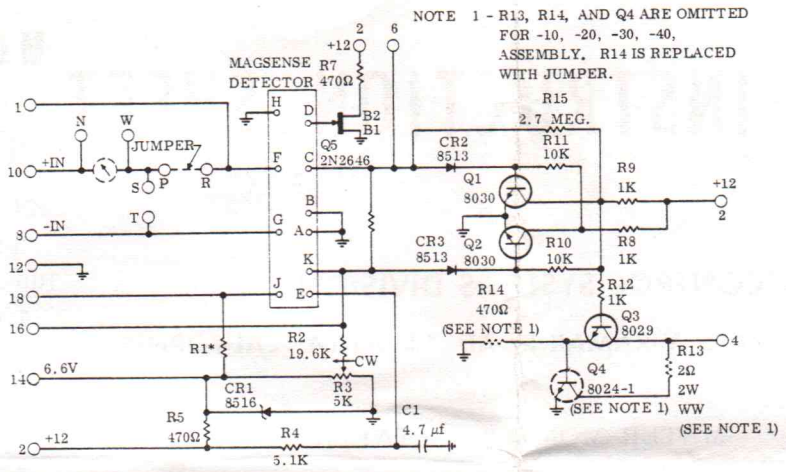
When the Meter Monitor printed circuit board is not mounted on a meter, connect points N and W by a jumper to close the input circuit. (See circuit schematic on reverse side.)

TERMINAL HOOKUP CONNECTIONS

Terminal 2	+12 VDC supply.
Terminal 4	Output terminal. Connect load between terminal 4 and positive voltage per specification.
Terminal 6	External set point current insertion to lower set point.
Terminal 8	Negative input signal.
Terminal 10	Positive input signal.
Terminal 12	Circuit ground. Power return.
Terminal 14	Internal reference voltage, approximately 6.5 VDC. Available current for external use not to exceed 2 ma.
Terminal 16	External set point current insertion to raise set point.

CAUTION

Do not use unassigned connectors for tie points.
Do not apply an output voltage greater than 30 volts.
Do not exceed 50 ma on the output of -10, -20, -30, or -40 units.
Do not exceed 0.5 amp on the output of -11, -21, -31, or -41 units.
Do not reverse printed circuit board in a connector.
The Meter Monitor printed circuit board terminal connections are listed below. Numbers refer to terminal markings on the board.



SCHEMATIC

MAGSENSE Model 70 nonlatching printed circuit board assembly with all terminals and jumper points identified.

HYSTERESIS ADJUSTMENT: Hysteresis (reset band) is normally factory set at less than 2% of the model range. Hysteresis can be widened by connecting an external resistor from terminal No. 4 to terminal No. 16. Hysteresis can be reduced by an electrical resistor between terminal No. 4 and terminal No. 6 to establish a time-proportioning control band. The resistor value is selected according to:

$$\triangle H = \frac{E}{2R}$$

where: $\triangle H$ = change in hysteresis (% of range)
R = Resistor value in megohms
E = Supply voltage to which load is returned.

OUTPUT ACTION: Output terminal No. 4 is energized when the input is more positive than the set point. To energize the output when the input is more negative than the set point:

a. Reverse the input polarities to meter-mounted printed circuit cards by rotating the card 180° on the meter studs.

b. By reversing the input wires, terminal No. 10 goes negative.

c. If only the integral set point pot is used, connect a stable 22K-ohm resistor between terminals No. 14 and No. 6.

d. If an external set point pot is used, connect a 5K-ohm external pot between terminals No. 14 and No. 12 and connect the pot wiper through a stable 20K-ohm resistor to terminal No. 6. Adjust internal set point to zero.

OUTPUT PROTECTION: The Meter Monitor is designed to drive resistive output loads. For inductive loads, such as relay coils, connect a silicon rectifier of suitable voltage rating across the load.

SPECIFICATIONS

Ranges:	100 μa	1 ma	10 ma	100 ma
Input Resistance: (Electrically Isolated)	105 ohms ± 10%	<2 ohm	<1 ohm	<1 ohm
Set Point Range:	0-100 μa	0-1 ma	0-10 ma	0-100 ma
Set Point Resolution:	1 μa	10 μa	0.1 ma	1 ma
Hysteresis:	3 μa max.	30 μa max.	0.3 ma max.	3 ma max.

RESPONSE TIME:

Nominally 50 ms (100 ms maximum) for input current step function traversing set point.

POWER REQUIRED:

10 to 14 VDC at approximately 30 ma.

OUTPUT LOAD:

External load up to 50 ma.

SIZE:

Printed circuit board 3" x 3 3/8" x 1 1/4" maximum component height.

WEIGHT:

Approximately 3 ounces.

DATA SHEETS. Applications and Engineering Data Sheets are available on request. Available sheets present economic use of MAGSENSE instrumentation for solutions to control problems. Request sheets from local authorized MAGSENSE representative or write: MAGSENSE Department.

MODIFICATIONS. The Meter Monitor can be adapted to AC inputs, other DC inputs, suppressed range/applications, differential gap, and time proportional control by means of various modifications. Modifications performed by persons other than authorized company representatives will automatically void the warranty. Such modifications performed by unauthorized personnel are at buyer's risk. Refer to Engineering Data Sheet ED-59M-63 for additional information.